UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,258	02/27/2004	David Edward Cooper	L9289.04116	1298

24257 7590 05/19/2005

STEVENS DAVIS MILLER & MOSHER, LLP
1615 L STREET, NW
SUITE 850
WASHINGTON, DC 20036

EXAMINER	
MEW, KEVIN D	

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/787,258	COOPER, DAVID EDWARD	
	Examiner	Art Unit	
	Kevin Mew	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *26,29,32,35,38 and 41* is/are allowed.

6)☒ Claim(s) *25,27,28,30,31,33,34,36,37,39 and 40, 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4, 8, 10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Drawings

1. The drawings are objected to because of the lack of descriptive legends in each figure of the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 25, 27, 34, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ranta et al. (EP 0 853 439 A2) in view of Kanerva et al. (USP 6,052,385).

Regarding claims 25, 34, Ranta discloses a communication apparatus to perform the method used in a mobile station apparatus (a communication method to use in a cellular system using TDMA, see col. 1, lines 46-48 and Fig. 1) which performs communication using a reception TDMA frame formed by eight reception slots (reception TDMA frame in downlink direction has eight slots, see frames 301, 302, 303, 304, Fig. 3) and a transmission TDMA frame formed by eight transmission slots (transmission frame in uplink direction has eight slots, see frames 401, 402, 403, 404, Fig. 4), an offset between the reception TDMA frame and the transmission TDMA frame being three slots, the method comprising the steps of:

receiving using a reception slot of the TDMA frame on the downlink after getting ready to receive (time slot 0 receives information RX of the downlink transmission direction, col. 1, lines 52-53, col. 2, lines 44-46, and Fig. 1);

transmitting using a transmission timeslot of the TDMA frame on the uplink after getting ready to transmit (time slot 3 transmits information TX of the uplink transmission direction, see col. 1, lines 53-55, col. 2, lines 44-46 and Fig. 1);

performing adjacent cell signal level measurement together before either getting ready to receive or getting ready to transmit (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57),

wherein (i) a time allocation of two consecutive slots shall apply for performing the adjacent cell signal level measurement (signal level measurements M in frame 301 are performed before a first reception slot RX in frame 302, see Fig. 3) and getting ready to receive (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57) and (ii) when the number of transmission slots used in one transmission frame on the uplink is the predetermined number, then a time allocation of two consecutive slots shall apply for performing the adjacent cell signal level measurement (signal level measurements M in frame 401 are performed before a first transmission slot TX in frame 402, see Fig. 4) and getting ready to transmit (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57).

Ranta further discloses neighboring cell signal level measurements are performed by stealing reception block during when discontinuous transmit mode DTX mode is not activated (see col. 5, lines 53-58, col. 6, lines 1-27) and time slot interval for neighboring cell signal level measurements is determined by signal quality (see col. 3, lines 12-20).

Ranta does not explicitly show the number of time slots used will be compared with a predetermined number of time slots in determining if DTX mode is not activated and signal level measurements would be performed.

However, Kanerva discloses DTX mode activation is determined by a data rate threshold value that DTX is activated when the data rate is below the threshold value and deactivated when the date rate reaches the threshold value (see col. 8, lines 66-67, col. 9, lines 1-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the frame transmission and reception and neighboring cell signal level measurements method and apparatus of Ranta with the DTX mode determination method based on the threshold data rate of Kanerva such that a threshold data rate for TDMA frames will be used to determine the activation status of DTX and that the neighboring cell signal level measurements will be performed in the reception block if DTX mode is not being used. The motivation to do so is to use a data rate threshold value to set up a criterion to dynamically indicate whether DTX is activated because an activated DTX mode means that the current number of active subchannels is adequate and unnecessary transmissions are avoided and hence the interference level in the in the mobile communication network will be lower.

Regarding claims 27, 36, Ranta discloses a communication apparatus to perform the method used in a mobile station apparatus (a communication method to use in a cellular system using TDMA, see col. 1, lines 46-48 and Fig. 1) which performs communication using a reception TDMA frame formed by eight reception slots (reception TDMA frame in downlink direction has eight slots, see frames 301, 302, 303, 304, Fig. 3) and a transmission TDMA frame formed by eight transmission slots (transmission frame in uplink direction has eight slots, see frames 401, 402, 403, 404, Fig. 4), an offset between the reception TDMA frame and the transmission TDMA frame being three slots, the method comprising the steps of:

receiving using a reception slot of the TDMA frame on the downlink after getting ready to receive (time slot 0 receives information RX of the downlink transmission direction, col. 1, lines 52-53, col. 2, lines 44-46, and Fig. 1);

transmitting using a transmission timeslot of the TDMA frame on the uplink after getting ready to transmit (time slot 3 transmits information TX of the uplink transmission direction, see col. 1, lines 53-55, col. 2, lines 44-46 and Fig. 1);

performing adjacent cell signal level measurement together before either getting ready to receive or getting ready to transmit (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57),

wherein (i) T_{ra} shall apply, T_{ra} being a time needed for the mobile station apparatus to perform adjacent cell signal level measurement (signal level measurements M in frame 301 are performed before a first reception slot RX in frame 302, see Fig. 3) and getting ready to receive (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57) and (ii) when the number of transmission slots used in one transmission frame on the uplink is the predetermined number, then T_{ta} shall apply, T_{ta} being the time needed to perform adjacent cell signal level measurement (signal level measurements M in frame 401 are performed before a first transmission slot TX in frame 402, see Fig. 4) and getting ready to transmit (neighboring cell signal level measurements made during time slots 5 and 6 at a monitoring moment, see col. 1, lines 55-57).

Ranta further discloses that neighboring cell signal level measurements are performed by stealing reception block during when discontinuous transmit mode DTX mode is deactivated (see

col. 5, lines 53-58, col. 6, lines 1-27), and that time slot interval for neighboring cell signal level measurements is determined by signal quality (see col. 3, lines 12-20).

Ranta does not explicitly show the number of time slots used will be compared with a predetermined number of time slots in determining if DTX mode is deactivated and signal level measurements would be performed.

However, Kanerva discloses DTX mode activation is determined by a data rate threshold value that DTX is activated when the data rate is below the threshold value and deactivated when the date rate reaches the threshold value (see col. 8, lines 66-67, col. 9, lines 1-24).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the frame transmission and reception and neighboring cell signal level measurements method and apparatus of Ranta with the DTX mode determination method based on the threshold data rate of Kanerva such that a threshold data rate for TDMA frames will be used to determine the activation status of DTX and that the neighboring cell signal level measurements will be performed in the reception block if DTX mode is not being used. The motivation to do so is to use a data rate threshold value to set up a criterion to dynamically indicate whether DTX is activated because an activated DTX mode means that the current number of active subchannels is adequate and unnecessary transmissions are avoided and hence the interference level in the in the mobile communication network will be lower.

3. Claims 28, 30, 37, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ranta et al. (EP 0 853 049 A2) in view of Kanerva et al. (USP 6,052,385), and in further view of Abdelsselem et al. (US Publication 2004/0151143 A1).

Regarding claims 28-30 and 37-39, the combined system of Ranta and Kanerva disclose all the aspects of the claimed invention set forth in the rejection of claims 25, 27, 34, 36 above, except fail to explicitly show the method according to claims 25, 27, 34, 36, wherein the predetermined number is four. However, Abdesselem discloses four time slots be used in an eight-timeslot TDMA frame for transmission and reception (see entire paragraphs 0006 and 0007). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the frame transmission and reception method and apparatus of Ranta and Kanerva with the teaching of using four time slots for transmission and reception in each TDMA frame in Abdesselem. The motivation to do so is to conform with the Annex B of 3GPP TS 45.002 standard to allow a maximum usage for a Type 1 semi-duplex mobile station for multislot class 12.

Regarding claims 31, 33 and 40, 42, the combined system of Ranta and Kanerva disclose all the aspects of the claimed invention set forth in the rejection of claims 25, 27, 34, 36 above, except fail to explicitly show the method according to claims 25, 27, 34, 36, wherein the method is applied to a multi-slot class 12 in a General Packet Radio System (GPRS). However, Abdesselem discloses a maximum number of four time slots be used for transmit and receive capability in each TDMA frame for multislot class 12 in a GPRS system (see entire paragraphs 0006 and 0007). Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify the frame transmission and reception method and apparatus of Ranta and Kanerva with the teaching of using four time slots for transmission and reception in each TDMA frame in Abdesselem. The motivation to do so is to make use of a maximum number of four time slots for transmit and receive capability in a TDMA frame because multislot class 12 in a GRPS system presents the maximum transfer capacity of the multislot classes for Type 1 semi-duplex mobile stations utilizing an eight-timeslot TDMA frame.

Allowable Subject Matter

4. Claims 26, 29, 32, 35, 38, 41 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

In claims 26, 35, wherein when a number of transmission slots used in one TDMA frame on the uplink is a predetermined number and when there is not a time of two time slots necessary for the adjacent cell signal level measurement and getting ready to receive after a last transmission slot, then a time allocation of two consecutive slots is provided for performing adjacent cell signal level measurement and getting ready to transmit before a first transmission slot.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to dynamic resource allocation In packet data transfer.

US Patent 6,487,415 to Eibling et al.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER

KDM
Art Unit 2664